

plating the interior wall with an electrically conductive material, electrically connecting the first and second wire traces by the connection established between the first and second terminal landing pads and the electrically conductive material plating.

18-26 (Original)

27-28 (Added Previously)

REMARKS

The drawings were objected to under 37 CFR section 1.83 (a). In support of the rejection, the examiner stated “the drawings must show every feature of the invention specified in the claims. Therefore, the ‘through hole in figure 13 has a convoluted shape cross-section’ must be shown or the features canceled from the claims. No new matter should be entered.

The applicant’s attorney has reviewed the objection to the drawing as well as the drawings and claims and does not understand the basis for the objection. A through hole having a convoluted shape cross-section is shown in figures 1, 2, 3, 4, 5, 6, and 6A. If there is some particular deficiency which has been overlooked, the applicant’s attorney would appreciate the examiner noting such deficiency and same will be immediately corrected. Furthermore,

the claims have been amended to replace the term “convoluted” with the term “non-circular”. This amendment is being made to more clearly define Applicant’s inventive concept.

Claim rejections-35 USC section 102

Claims 1-28 were rejected under 35 USC 102(b) has been anticipated by DiStefano et al. Independent claims 1, 3, and 17 have been amended to more clearly recite that the convoluted or non-circular shaped cross-section of the hole is normal to the longitudinal axis of the hole. DiStefano does not teach a through hole having a convoluted or non-circular shaped cross section normal to the longitudinal axis of the hole. Although DiStefano et al. teaches a through hole, such hole has a circular cross-section when the cross-section is taken normal to the longitudinal axis of the hole.

In support of the rejection of claims 2, and 21-23, it is stated that “DiStefano discloses an EMI shielding structure as shown in figures 1-25 for a printed circuit board 95 for shielding wiring circuit traces on a plurality of circuit trace layers characterized by a trench (via 60) having a rim (55, col. 11, line 26)...”. Applicant’s attorney is having a difficult time understanding the basis for this rejection. That is, each of claims 2 and 21-23 recites a “trench”.

The term trench is believed to mean a long narrow depression (see, for example, Miriam Webster Dictionary). In support of the assertion that DiStefano discloses a trench, the Examiner refers to column 11, line 26. The paragraph in column 11 which is referred to by the Examiner only discloses the formation of a cylindrical hole 60.

Applicant's attorney also respectfully disagrees with the assertion in the Office Action that DiStefano discloses a "trench having a length greater than two times the breadth of said trench and said wall vertically extends around the perimeter of the printed circuit board and said plating electrically connects to said exposed ground plane and wraps over and laterally extends from said rim forming a lip". With respect to this last assertion, no column nor line number has been provided. Applicant's attorney can not locate any teaching in DiStefano which shows a trench having a length greater than the two times the breadth of said trench. If there is some particular teaching in DiStefano that Applicant's attorney has overlooked, it would be helpful if the line and column number of such teaching would be provided.

With respect to claims 3-4, 8, 13 and 16, it is believed that the rejection has been overcome in that independent claim 3 has been amended to clarify that the non-circular shaped cross section is normal to the longitudinal axis

of the through hole. Claims 13 and 16 have been amended to recite “a first through hole having a non-circular cross section taken normal to a longitudinal axis of the first through hole.” As discussed above, although DiStefano et al. teaches a through hole, such hole has a circular cross section when the cross section is taken normal to the longitudinal axis of the hole.

With respect to claims 5-7, it is stated “DiStefano discloses the structure as shown in figures 15, 17, 23, and 25 wherein the continuous curved cross section is U-shaped, L-shaped, or + shaped.” Applicant’s attorney is also having a difficult time understanding the rejections with respect to claims 5-7. That is, the various shapes shown in 15, 17, 23 and 25 are all with respect to the pad adjacent to the hole, the hole is consistently taught as having a circular cross section.

Regarding claims 9-12, it is stated that “DiStefano discloses a trench (60) having an interior wall (54).” As discussed above, it is applicant’s position that DiStefano does not teach a trench. DiStefano merely teaches a circular hole. Again, if there is some particular teaching which applicant’s attorney has overlooked, it would be helpful if the Examiner would note such teaching in particular.

With regard to claims 14-15, it is stated that “DiStefano discloses the

structure as shown in figures 1-25 wherein the major diameter is at least about twice or three times that of the minor diameter (see, figure 5). Claim 13, and thus claims 14 and 15 which depend therefrom, have been amended to recite that the first through hole has a non-circular cross section taken normal to a longitudinal axis of the first through hole. As discussed above, DiStefano does not teach a hole having a non-circular cross section taken normal to a longitudinal axis of the first through hole. That is, the structure shown in figure 5 of DiStefano shows a hole having a diameter which changes in a direction parallel to the longitudinal axis of the hole.

With respect to claim 27, such claims depends from claim 3. As discussed above, claim 3 has been clarified by stating that the convoluted shaped cross section is taken normal to a longitudinal axis of the first through hole.

With respect to claims 17-19 and 28, it should be noted that DiStefano does not teach the step of translating a cutting means laterally while continuing the circular patterned cutting action forming a non-circular through hole. If there is some particular teaching which applicant's attorney has overlooked in this respect, it would be helpful if the Examiner would note the column and line number of such teaching.

With respect to claim 20, claim 20 also recites the step of “translating the cutting means laterally while continuing the circular patterned cutting action forming a trench extending to form a perimeter at least partially about the first wire trace....” . Again, Applicant’s attorney cannot locate any teaching in DiStefano with regard to translating a cutting means laterally while continuing the circular patterned cutting action to form a trench. Therefore, it is not believed that this method is taught or inherent by the DiStefano reference.

In view of the foregoing, it is Applicant’s position that none of the claims pending in the present patent application are anticipated by DiStefano et al. Reconsideration and withdrawal of the rejections is respectfully requested.

ALLOWED CLAIMS

Claim 24 was objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. As discussed above, it is Applicant’s position that claim 21, the independent claim from which claim 24 depends is not anticipated by DiStefano et al. Thus, it is believed that the objection to claim 24 should be withdrawn. Applicant

acknowledges the indication of allowability of claim 24 with appreciation.

Applicant also appreciates the Examiner's allowance of claims 25-26.

SUMMARY

The foregoing is intended to be a complete response to the Office Action dated October 23, 2002. Reconsideration and withdrawal of the before mentioned rejections is respectfully requested. Should the Examiner have any questions regarding the foregoing, Applicant's attorney would welcome a telephonic interview with the Examiner.

Respectfully submitted,



Marc A. Brockhaus, Reg. No. 40,923
Dunlap, Coddling & Rogers, P.C.
P.O. Box 16370
Oklahoma City, OK 73113
Attorney for Applicant